Separate Copy!

August 10 1964

(4) File

HIGH RESOLUTION SCREEN

The move of [redacted] has been postponed until August 25. They are building a new plant and it will be about 20 miles east of the present location.

The high resolution screen is a proprietary concept by [redacted] who is program manager for [redacted] His concept is to coat a plastic or glass screen with a transparent phosphor. When the phosphor is illuminated with ultraviolet light, it will absorb the ultraviolet and emit visible light. Therefore, if a continuous tone transparency is illuminated with UV and projected onto the phosphor, it will be seen in visible light as though it originated at the transparent screen.

There appeared to be several striking advantages:

a. Very high resolution could be obtained at the screen.

b. The brightness lobe of the phosphor would be expected to be Lambertian so wide viewing angles are possible.

c. Ambient room light would pass through the transparent screen and could be absorbed in the structure with very little reflection and so would not affect the contrast of the image on the screen.

Since this was a brand new concept, a feasibility study seemed to be the best approach.

The phosphor coating research was subcontracted to [redacted] is the parent company of [redacted]

[redacted] quickly showed that the phosphor screens would readily resolve 100 lines/mm at the screen. He could also reproduce step wedges and get good gray scale rendition in continuous tone images. He also found that the brightness of the visible light from the phosphor could be increased to the dazzling point by increasing the UV.

Declass Review by NGA.

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STAT [redacted] has completed his experimental work and is analyzing the results. The inorganic phosphors were very dim and essentially not useable. Certain organic phosphors gave adequate brightness, but the organic dyes seemed to give best results. Some color control can be obtained by mixing dyes. [redacted] will select STAT the best ones for making coatings for a feasibility demonstration.

I believe it is important that the best phosphor be selected for a feasibility demonstration and, if successful, prototype projector equipment for using the technique be considered. In addition, I believe a long term continuation of the phosphor search program should be initiated since they have really only scratched the surface of the possibilities.

STAT One of the major problems of the program will be obtaining high intensity UV light. [redacted] will use a 2-1/2 KW mercury vapor lamp filtered to pass the 3650 Angstrom UV line and the 5461 Angstrom green line. [redacted] has designed a STAT special projection lens for these wavelengths. The lens design is complete and he is about to start manufacturing. Lens procurement is now pacing the program. If they can get good delivery, they expect to be ready in October for the feasibility demonstration.

Questionable decision Wrong! 30 Aug 64

[redacted] STAT